METHOD OF WEIGHTED RESIDUALS AS APPLIED TO NONLINEAR DIFFERENTIAL EQUATIONS.

Baluch M.H., Mohsen M.F.N., Ali A.I.

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Abstract: The nonlinear equation is linearized by guessing an initial solution and using it to evaluate the nonlinear terms. Next, a method of weighted residuals is applied to transform the linearized form of the boundary value problem to an initial value problem. The second (improved) solution is obtained by integrating the initial value problem by a fourth order Runge-Kutta scheme. The entire process is repeated until a desired convergence criterion is achieved.